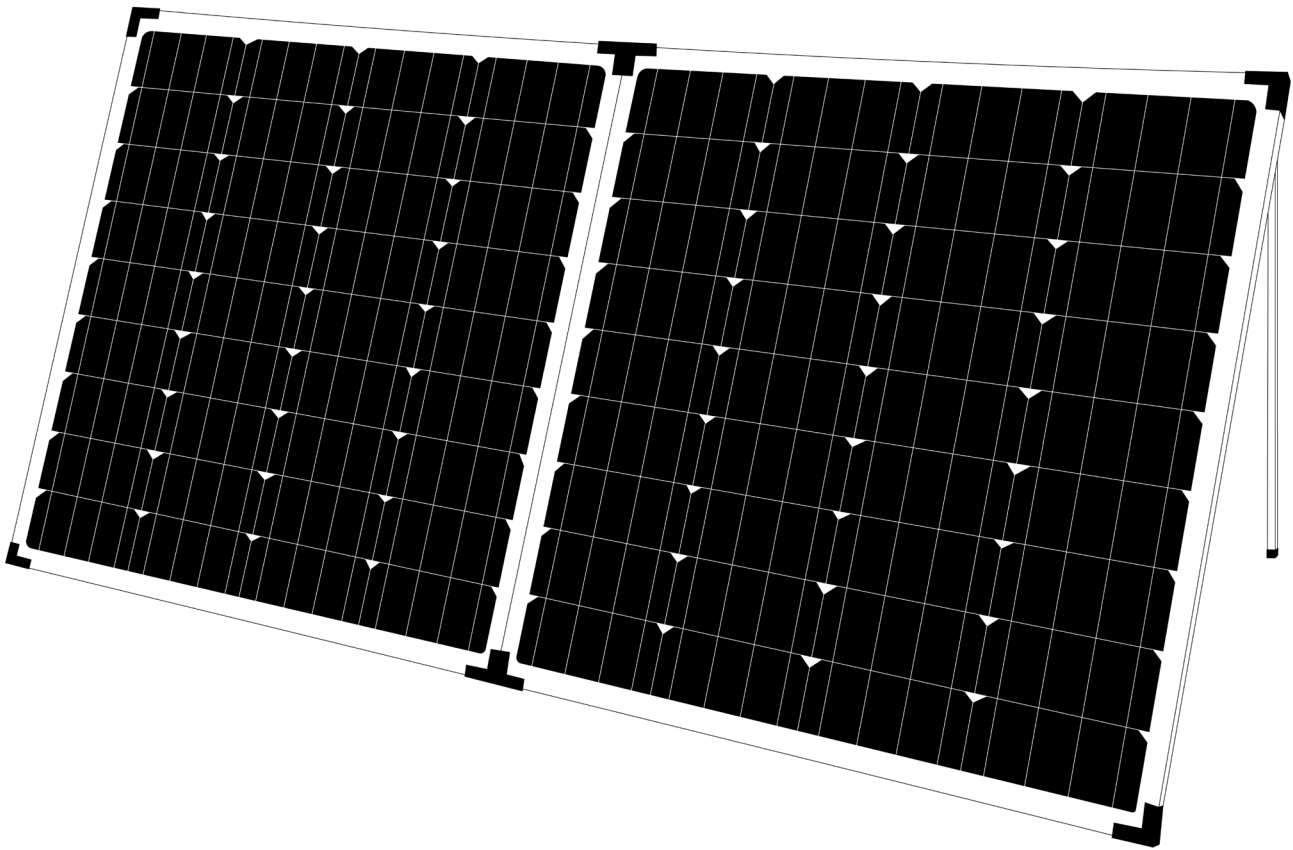




250W Folding Solar Panel **USER MANUAL**

AKSR-PN250W_02



V1.4

***PLEASE READ AND UNDERSTAND THIS MANUAL
COMPLETELY BEFORE USING THIS PRODUCT.***

WARNINGS & SAFETY INFORMATION

- Keep the solar panel and controller away from liquids at all times.
- Keep the solar panel and controller clean and always check connectors for debris before connecting.
- This product is not intended to be used by children. In addition to this, adults with reduced physical or mental capabilities, or those who are under the influence of drugs or alcohol should not use the product.
- Only use the solar panel to charge 12v, rechargeable batteries.
- Lead acid batteries produce harmful explosive gases. The battery should be mounted in well-ventilated area, away from possible ignition sources.
- Take care when maneuvering & setting-up the Solar Panel as to not damage the unit.
- Never connect the Solar Panel directly (without a controller) to a battery or other load.
- Tampering or modifying the solar panel, controller or wiring will void warranty.
- When transporting the solar panel, firmly secure the panel so that it will not move around or collide with other objects.
- Do not use the solar panel, controller or wiring if it is damaged or compromised in any way.

INCLUDED IN THE KIT

1x



**Folding Solar Panel
With Adjustable Legs**

1x



Solar Controller

1x



**4.5m Cable with
Anderson Plugs**

1x



Battery Clips

1x



Protective Carry Bag

SOLAR BLANKET SPECIFICATIONS

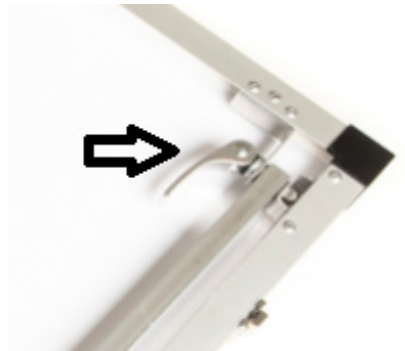
| | |
|-----------------------------------|--------------------|
| Max Power. | 250W |
| Tolerance | ± 3% |
| Voltage at Pmax (Vmp) | 18.2V |
| Current at Pmax (Imp) | 13.74A |
| Open-Circuit Voltage (Voc) | 22.3V |
| Short-Circuit Current (Isc) | 14.62A |
| Normal Operating Cell Temp (NOCT) | 47 ± 2°C |
| Maximum System Voltage | 1000VDC |
| Maximum Series Fuse Rating | 20A |
| Operating Temperature | -40°C to +85°C |
| Application Class | Class A |
| Weight | 19 kg |
| Dimensions | 1060 x 1400 x 30mm |

INSTRUCTIONS

250W Folding Solar Panel will perform at its peak when it faces directly towards the sun.

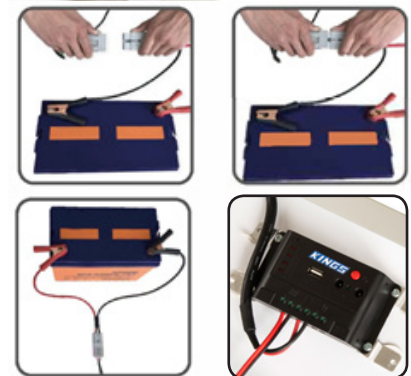
ADJUSTABLE SUPPORT LEGS

- Pull the support leg away from the Solar Panel from the foot of the leg. The support legs are loose and the angle of the solar panel can be adjusted.
- When the desired angle is reached, pull the latch towards the leg to lock it in position.



CONNECTING YOUR SOLAR PANEL

- Now that the panel is setup facing directly towards the sun. Connect the positive and negative clips to your battery.
- Always connect the battery clips to the battery first, before connecting to the solar panel. The solar controller will then illuminate



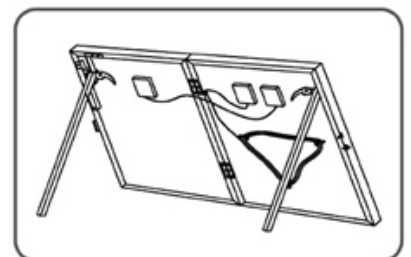
DISCONNECTING & STORING YOUR SOLAR PANEL

- Disconnect the solar panel off the battery before removing the battery clips off the battery.
- Roll the wire neatly into the space behind the solar panel, make sure not to twist or kink the wiring in an unnatural way.
- Place the battery wire separately in the front pocket of the carry bag.
- Note: Never store your solar panel with the battery wire connected to the panel.



Figure 9

Figure 10



TIP

For optimal performance through-out the day, set the panel to approximately 30° from the ground. The range between 10° and 40° will gain the best power absorption across the course of the day.



ANGLE TO SUN BETWEEN 10° & 40°



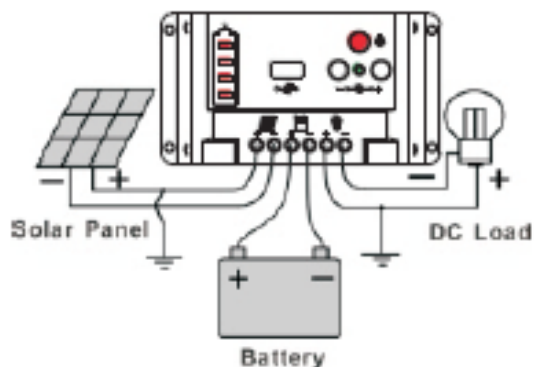
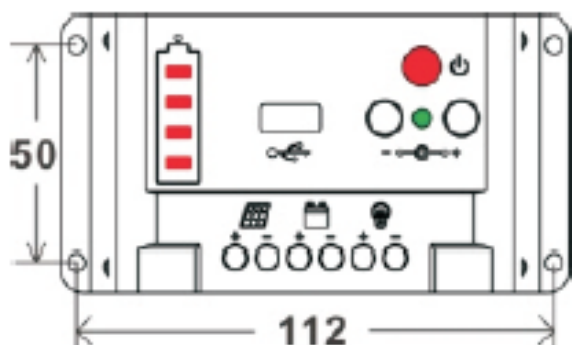
PULSE WIDTH MODULAR (PMW) SOLAR PANEL CONTROLLER

| | |
|--------------------------------------|----------|
| External Dimensions (mm): | 120 x 64 |
| Bolt Spacing (mm): | 112 x 50 |
| Mounting Hole Diameters (mm): | 3.5 |

CONNECTING TO A LOAD

- Connect the solar panels (+) positive and (-) negative terminals to a Load's corresponding terminals. If the Load is receiving electricity, the Load Indicator Light will turn on.
- The power button will control the 2 x 12V DC sockets only.

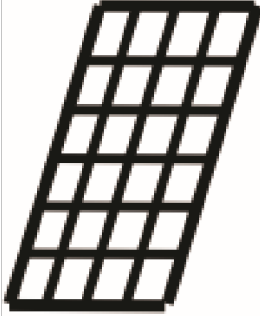

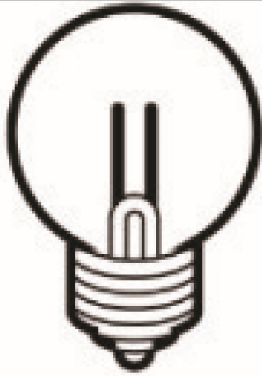
Note: Make sure the load does not exceed the PWM Controller's rated output.



USAGE RECOMMENDATIONS

- As the controller generates heat during operation, install in an environment with good ventilation and ample clearance.
- The controller measures the ambient temperature and adjusts battery charging accordingly, for this reason, place the controller and battery close to each other.
- Always use cables that are rated to or higher than the current output of the controller, overloading wires can result in fires and damage to equipment.
- The controller has a common positive pole inside. If grounding is required, ground the positive pole

STATE INDICATORS

| LED LIGHT | INDICATED ITEM | STATE | MEANING |
|-------------------------------------------------------------------------------------|----------------|-----------------|-------------------------------------|
|  | Solar Panel | Light ON | Solar Panel Generating Power |
| | | Light OFF | Solar Panel is not Generating Power |
| | | Slowly Flashing | Charging in Process |
| | | Rapid Flashing | Over-voltage |
|  | Battery | Light On | Battery Connected |
| | | Light OFF | Battery is not Connected |
| | | Slowly Flashing | Low Battery Voltage |
| | | Rapid Flashing | Battery Over Discharged |
|  | Load | Light ON | Load Drawing Power |
| | | Light OFF | No Load/Load is Not = Drawing Power |
| | | Slowly Flashing | Overload Protection |
| | | Rapid Flashing | Short Circuit Protection |

PARAMETER DETAILS

| | | | | | | |
|----|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-------|---------|------------------------------|------------------------------|
| 1 | Battery Type | Sealed | GEL | Flooded | Ternary-Material Lithium | Lithium Iron Phosphate** |
| 2 | System Current | 10A | | | | |
| 3 | No-Load Loss | 10mA | | | | |
| 4 | Solar Energy Input Voltage | <55V | | | | |
| 5 | System Voltage | 12V Auto | | | 3 & 4 Strings: 12V System | 3 & 4 Strings: 12V System |
| 6 | Over-voltage Protection | 17V | | | 4.2* N + 2.0 V | 3.65 V * N + 2.0V |
| 7 | Equalising Charging Voltage | 14.6V | - | 14.8V | - | |
| 8 | Boost Charging Voltage | 14.4V | 14.2V | 14.6V | - | |
| 9 | Floating Charge Voltage | 13.8V | | | - | |
| 10 | Overcharge Voltage | - | | | 4.2V * N | 3.65V * N |
| 11 | Overcharge Recovery | - | | | 3.9V * N | 3.4V * N |
| 12 | Boost Charging Recovery | 13.2V | | | - | |
| 13 | Over-Discharge Recovery Voltage | 12.5V | | | 3.3V * N | 3.0V * N |
| 14 | Undervoltage | 12.0V | | | 3.2V * N | 2.8V * N |
| 15 | Over-Discharge Voltage | 11.0V | | | 3.0V * N | 2.5V * N |
| 16 | Temperature Compensation | -4.0mv/°C/2V | | | - | |
| 17 | Equalising Charging Duration | 1hr | - | 1hr | - | |
| 18 | Boost Charging Duration | 4hr | | | - | |
| 19 | Light Controlled Voltage | Light Controlled on at 5V, Light Controlled off at 6V | | | | |
| 20 | Light Control Interval | 1min | | | | |
| 21 | Overload and Short-Circuit Protection | 1.25x rated current: 30s; 1.5x rated current: 5s overload protection; >3x rated current: short-circuit protection | | | | |
| 22 | Operating Temperature | -35°C to +65°C | | | | |
| 23 | Weight | 140g | | | | |

* PARAMETERS ARE TAKEN FROM AN AMBIENT TEMPERATURE OF 12°C, 12V SYSTEM VOLTAGE

**SINGLE-PIECE LITHIUM BATTERY PARAMETERS

TROUBLESHOOTING

| SYMPTOMS | CAUSES AND SOLUTIONS |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Indicator LED does not light up when Solar Panel is in direct sunlight. | Check to make sure all connections are strong and reliable. |
| Solar Panel Indicator LED flashing rapidly. | Over-voltage - Check battery voltage. |
| Solar Panel Indicator LED is off, battery voltage is sufficient, but there is no output. | The load will be switched on automatically after 10 minutes. |
| The Battery Indicator LED is off. | The battery is failing to supply power. Check whether battery has a proper connection and sufficient charge. |
| Battery Indicator LED flashing rapidly and no battery output. | The battery is over-discharged, the battery will need to be adequately recharged. |
| The Load Indicator LED is flashing slowly and is not receiving power. | The load power exceeds the rated power. Reduce load and hold key to recover. |
| The Load Indicator LED is flashing rapidly and the load is not being powered. | Short Circuit Protection. Hold key to recover. |
| The Load Indicator LED is on but, the load is not powered. | Check to make sure all connections are strong and reliable. |
| Other Issues. | Check to make sure all connections are strong and reliable. Ensure battery and/or load is 12V. |

12 MONTH LIMITED WARRANTY

WARRANTY PERIOD:

Full 12 month warranty from date of purchase against all manufacturing defects.

WHAT DOES THE WARRANTY COVER?

Under normal usage conditions, this warranty covers:

- a. Any defect in design or manufacture which results in the product failing to perform substantially as described in authorised advertising or literature.
- b. We will either repair or replace the product at our discretion providing that the fault is found to have been caused by a design or manufacturing defect and not misuse or tampering.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. The benefits provided to you as the consumer by this warranty are in addition to other rights and remedies available to you under the law.

THE WARRANTY DOES NOT COVER:

- a. Any damage resulting from improper use
 - b. Faulty installation or modification made during installation
 - c. The cost of removing and reinstalling the product
 - d. Travel and /or other expenses due to customer's remote location
 - e. Transport charges and damage in transit. It is your responsibility to deliver and pick up your product, including any costs associated with the postage of your repair or replacement product. If you do freight your product we recommend that you insure against loss or damage.
 - f. Any loss directly or indirectly associated with the product failing to operate.
 - g. Damage caused by mould, insects, animals, misuse, incorrect operation, adverse weather, accidents and fair wear and tear
-

TO MAKE A CLAIM, PLEASE ENSURE YOU RETAIN YOUR SALES RECEIPT OF PURCHASE

1800 88 39 64



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